

What is claimed is:

1. A system for monitoring the power output of a light source, comprising:
a light source for providing a light beam;
a photo detector; and
an optical lens positioned in the light beam, the optical lens having an input surface generally facing the light source and an output surface generally facing away from the light source, the optical lens further having a reflective surface that covers less than half of the surface area of the input surface of the lens, wherein the reflective surface is adapted to reflect at least a portion of the light beam toward the photo detector.
2. The system of claim 1 further comprising:
a controller coupled to the photo detector and the light source, the controller receiving a signal from the photo detector that is indicative of the amount of light detected by the photo detector, the controller being adapted to provide a control signal to the light source that adjusts the power of the light source so that the signal from the photo detector is relatively constant.
3. The system of claim 1 wherein the reflective surface is provided on the input surface of the lens.
4. The system of claim 3 wherein the reflective surface is a concave surface on the input surface of the lens.

5. The system of claim 4 wherein the input surface of the lens is generally convex except for the concave reflective surface.

6. The system of claim 5 wherein the optical lens is an aspheric lens with the concave reflective surface molded therein.

7. The system of claim 3 wherein the light beam illuminates an illumination pattern on the input surface of the optical lens, wherein the illumination pattern has a central axis and an outer perimeter, the reflective surface extending from at or near the center axis of the illumination pattern to at or near the outer perimeter of the illumination pattern.

8. The system of claim 1 wherein the reflective surface is adapted to focus at least part of the reflected light onto the photo detector.

9. The system of claim 1 wherein the reflective surface has a rectangular shaped perimeter.

10. The system of claim 1 wherein the reflective surface has a circular shaped perimeter.

11. The system of claim 1 wherein the reflective surface has an oval shaped perimeter.

12. The system of claim 1 wherein the reflective surface has an annular shaped perimeter surrounding an at least partially transmissive surface of the lens.
13. The system of claim 1 wherein the reflective surface includes a coating of a reflective material.
14. The system of claim 13 wherein the coating includes a noble metal.
15. The system of claim 1 wherein the light source and photo detector are positioned adjacent to one another, and the optical lens is spaced from both the light source and photo detector.
16. The system of claim 15 further comprising an optical fiber, wherein the optical lens is adapted to couple at least part of the light beam from the light source into the optical fiber.
17. The system of claim 1 wherein the reflective surface reflects less than 25% of the power in the light beam that is provided by the light source.
18. The system of claim 1 wherein the light source includes a vertical cavity surface emitting laser (VCSEL).

19. The system of claim 1 wherein the light source includes a Light Emitting Diode (LED).

20. The system of claim 1 wherein the photo detector includes a photodiode.

21. The system of claim 1 wherein the light source has a numerical aperture that is dependent upon one or more operating conditions, the reflective surface being configured to reflect a relatively constant percent of the power of the light beam provided by the light source over a range of numerical apertures of the light beam.

22. A lens comprising:
a transmissive part for passing a portion of an incident light beam; and
a reflective part for reflecting a portion of the incident light beam, the reflective part being substantially non-transmissive.

23. The lens of claim 22 wherein the lens includes a first lens surface and an opposing second lens surface, the reflective part covering less than half of the surface area of the first lens surface.

24. The lens of claim 23 wherein the reflective part covering less than 25% of the surface area of the first lens surface.

25. The lens of claim 23 wherein the reflective part reflects less than 25% of the power of the light that is incident on the first lens surface.

26. The lens of claim 22 wherein the reflective part is integral with the lens.

27. The lens of claim 22 wherein the reflective part is concave, and the transmissive part is convex.

28. The lens of claim 22 wherein the lens has an aspheric surface and the reflective part is molded into the aspheric lens surface.

29. The lens of claim 22 wherein the reflective surface is coated with a reflective metal.

30. The lens of claim 29 wherein the reflective metal is a noble metal.

31. The lens of claim 22 wherein the reflective part is an annular shape.

32. The lens of claim 22 wherein the reflective part is a circular shape.

33. The lens of claim 22 wherein the reflective part is an oval shape.

34. The lens of claim 22 wherein said reflective part has a polygon shape.

35. A method for making a lens, the method comprising:
providing a lens that has a first major surface and a second major surface; and
coating less than all of the first major surface with a reflective coating.

36. The method of claim 35 wherein the reflective coating is substantially
non-transmissive.

37. The method of claim 35 wherein the first major surface is convex with a
flat or concave portion, and wherein the coating step coats the flat or concave portion
with the reflective coating.

38. The method of claim 35 wherein the lens is molded.

39. The method of claim 38 wherein the reflective coating is deposited.